

**REMARKS**

In the Office Action<sup>1</sup>, the Examiner took the following actions:

rejected claims 17 and 19 under 35 U.S.C. § 112, first paragraph;

rejected claims 17, 19, 20, 23, and 35 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent no. 7,246,058 B2 to Burnett ("Burnett") in view of "Selected Topics in Surface Electromyography for Use in the Occupational Setting: Expert Perspectives," U.S. Department of Health and Human Services, 1992, Publication No. 91-100 ("CDC");

rejected claims 21 and 22 under 35 U.S.C. § 103(a) as being unpatentable in view of Burnett, CDC, and U.S. Pat no. 4,654,883 to Iwata ("Iwata"); and

rejected claims 24-34 under 35 U.S.C. § 103(a) as being unpatentable in view of Burnett, CDC, and U.S. Pat no. 5,729,694 to Holzrichter et al. ("Holzrichter").

By the present amendment Applicant cancels claim 21 without prejudice or disclaimer and amends claims 17, 22, 23, 33, and 35. Claims 17, 19, 20, and 22-35 are now pending, and the rejection of claim 21 is rendered moot by the cancellation.

**I. Rejection of Claims 17 and 19 under 35 U.S.C. §112, first paragraph**

Applicant respectfully traverses the rejection of claims 17 and 19 under 35 U.S.C. §112, first paragraph. Page 3 of the Office Action states that claims 17 and 19 fail to comply with the written description requirement because "the specification does not clearly disclose what is the frequency range for soft tissue 'non-audible sounds' and 'audible sounds'; and how to define 'non-audible sounds' and 'audible sounds'; and

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<sup>1</sup> The Office Action may contain statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicant declines to automatically subscribe to any statement or characterization in the Office Action.

what is the age of that second person." Applicant respectfully disagrees and assert that claims 17 and 19 are fully supported by the specification.

The MPEP states:

Any analysis of whether a particular claim is supported by the disclosure in an application requires a determination of whether that disclosure, when filed, contained sufficient information regarding the subject matter of the claims as to enable one skilled in the pertinent art to make and use the claimed invention . . . . *In re Wands*, 858 F.2d at 737, 8 USPQ2d at 1404 (Fed. Cir. 1988). See also *United States v. Telelectronics, Inc.*, 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988) ("The test of enablement is **whether one reasonably skilled in the art could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation.**"). A patent need not teach, and preferably omits, what is well known in the art. *In re Buchner*, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991). (Emphasis added).

Applicant submits that the age and sex of the first or second person, and the frequency of vibrations "non-audible to the second person," are not relevant to satisfy the written description requirement. For example, page 1 lines 7-17 of the originally-filed specification disclose:

a microphone that samples a vibration sound (hereinafter referred to as a "**non-audible murmur**") containing a non-audible respiratory sound transmitted through internal soft tissues (this will hereinafter be referred to as "flesh conduction"), the respiratory sound being articulated by a variation in resonance filter characteristics associated with the motion of the phonatory organ, the respiratory sound not involving the regular vibration of the vocal cords, the respiratory sound being **not intended to be heard by surrounding people**, the respiratory sound involving a very small respiratory flow rate (expiratory flow rate and inspiratory flow rate), as well as a communication interface system using the microphone. (Emphasis added).

Thus, one of ordinary skill in the art, in view of at least the above-noted disclosure , would understand that the claimed "sounds generated by a first person

which are non-audible to a second person" include vibratory sounds which result from the conduction of non-audible respiratory sounds of small quantities by soft tissues in the body. As noted above, the "non-audible murmurs" include regular vibrations of the vocal cords articulated by variations in resonance filter characteristics accompanying the motions of phonatory organs and are not intended to be heard by a second person of any age or gender sitting near the first person. Page 9 lines 9-24 of the specification further discloses "**the non-audible murmur need not be heard by surrounding people.** In this connection, the non-audible murmur is different from a whisper intended to positively have surrounding people hear it. The present invention is characterized in that the non-audible murmur is sampled through a microphone utilizing flesh conduction instead of air conduction." (Emphasis added).

Accordingly, the features of claims 17 and 19 are fully supported by the specification, and Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 17 and 19 under 35 U.S.C. § 112, first paragraph.

## **II. Rejection of Claims 17, 19, 20, 23, and 35 under 35 U.S.C. § 103(a)**

Applicant respectfully traverses the rejection of claims 17, 19, 20, 23, and 35 under 35 U.S.C. § 103(a) as being unpatentable in view of *Burnett* and *CDC*. A *prima facie* case of obviousness has not been established.

The key to supporting any rejection under 35 U.S.C. § 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. Such an analysis should be made explicit and cannot be premised upon mere conclusory statements. See *M.P.E.P. § 2142, 8th Ed., Rev. 6* (Sept. 2007). Furthermore, "[i]n determining the differences between the prior art and the claims, the question under 35

U.S.C. § 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious." *M.P.E.P.* § 2141.02(I), internal citations omitted (emphasis in original).

Independent claim 17 recites a device for sampling sounds including "a stethoscope-type microphone having a capacitor microphone, a diaphragm, and a synthetic resin sucker, the diaphragm being attached on a surface of skin over a sternocleidomastoid muscle below a mastoid of the first person so as to detect vibrations non-audible to the second person, which are transmitted through flesh of the first person to the sternocleidomastoid muscle and conducted through the skin." Combinations of *Burnett* and *CDC* do not teach or suggest at least these features of claim 17, and do not render claim 17 obvious.

*Burnett* discloses a Pathfinder Speech Activity Detection (PSAD) system 200 capable of reducing noise while separating voiced and unvoiced human speech from background noise. (*Burnett*; Figures 2 and 3; and col. 3, lines 15-26). As disclosed in Figure 3 of *Burnett*, the PSAD system requires at least two microphones and a sensor. Claim 17, however, recites "a stethoscope-type microphone having a capacitor microphone [and] . . . a diaphragm . . . , the diaphragm being attached on a surface of skin over a sternocleidomastoid muscle below a mastoid of the first person." Thus, the configuration of microphones disclosed in *Burnett* is different from the claimed "stethoscope-type microphone."

Moreover, *Burnett* discloses "[p]lacing the microphones Mic 1 and Mic 2 in a linear array with the mouth on the array midline," (*Burnett*; Figure 7; and col. 7, lines 53-55) where "[t]he sensor detects human tissue motion associated with the closure of the

vocal folds, so the acoustic signal produced by the closure of the folds is highly correlated with the closures," (*Burnett*; col. 5, lines 26-29). Thus, the sensor taught by *Burnett* is placed in a linear array with the mouth to detect acoustic signals produced by vocal folds. Detecting acoustic signal produced by folds does not constitute "detect[ing] vibrations non-audible to the second person, which are transmitted through flesh of the first person to the sternocleidomastoid muscle and conducted through the skin." This is because the sensor in *Burnett* does not detect non-audible vibrations "transmitted **through flesh** of the first person **to the sternocleidomastoid muscle.**"

On page 4 of the Office Action, the Examiner acknowledges that "*Burnett* does not explicitly teach the positioning structure positioning the microphone on a surface of skin over a sternocleidomastoid muscle below a mastoid of the person." Instead, the Examiner relies on *CDC* to overcome this deficiency of *Burnett*. Further, the Office Action states that B and C in Figures 3-5 of *CDC* constitute the claimed "surface of skin over a sternocleidomastoid muscle." Office Action, page 4. This, however, is not correct.

*CDC* discloses "[s]urface electromyography (EMG) is a technique whereby voltage-measuring electrodes attached to the surface of the skin are used to detect and/or infer various phenomenal relating to muscular contractions." (Page vi, first paragraph). Moreover, on pages 27 and 28, and Figures 3-4A-F and 3-5A-P, *CDC* discloses various positions in which a voltage measuring electrode may be attached to the surface of the skin. Position B in Figures 3-5 of *CDC*, however, constitutes a muscle extending from the backside of an ear to a lower side of laryngeal prominence, and position C indicates a muscle extending from the backside of the neck to the right

shoulder. Positions B and C of *CDC*, however, do not identify a “surface of skin over a sternocleidomastoid muscle,” (emphasis added) as recited in claim 17.

In addition, the voltage-measuring electrodes of *CDC* do not constitute the claimed “microphone.” This is because the electrodes of *CDC* use myoelectric signals that are obtained by measuring the potential difference of an electric signal generated based on muscle contractions. (*CDC*, Prologue, page iv). In contrast, claim 17 recites detecting non-audible vibrations that “are transmitted through flesh of the first person to the sternocleidomastoid muscle and conducted through the skin,” as recited in claim 17. Detecting muscle contractions by using electrodes in *CDC* does not constitute detecting vibrations “transmitted through flesh . . . to the sternocleidomastoid muscle and conducted through the skin.”

Accordingly, even if the teachings of *Burnett* and *CDC* are considered in combination, such a combination does not teach, suggest, or render obvious the features of claim 17, and no *prima facie* case of obviousness has been established for at least the reason that the Office Action has not given patentable weight to all the features of claim 17. Thus, the rejection of claim 17 under 35 U.S.C. § 103(a) should be withdrawn.

Independent claim 19, though of different scope from claim 17, recites features similar to those of claim 17 and is thus also allowable over *Burnett* and *CDC* for reasons similar to those presented above for claim 17. Claims 20, 23, and 35 depend from one of the independent claims and are thus also allowable over *Burnett* and *CDC* by virtue of their dependency. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) is therefore respectfully requested and deemed appropriate.

### **III. Rejection of Claim 22 under 35 U.S.C. § 103(a)**

Applicants respectfully traverse the rejection of claim 22 under 35 U.S.C.

§ 103(a) as being unpatentable in view of *Burnett*, *CDC*, and *Iwata* because a *prima facie* case of obviousness has not been established.

Claims 22 depends from claim 17 and thus requires all features of claim 17. As discussed above, *Burnett* and *CDC* do not teach or suggest the features of claim 17. *Iwata* also does not teach or suggest these claimed features, and fails to overcome the deficiencies of *Burnett* and *CDC*.

Therefore, a *prima facie* case of obviousness has not been established and claim 22 is allowable over *Burnett*, *CDC*, and *Iwata* at least due to its dependence from claim 17.

### **IV. Rejection of Claims 24-34 under 35 U.S.C. § 103(a)**

Applicants respectfully traverse the rejection of claim 24-34 under 35 U.S.C. § 103(a) as being unpatentable in view of *Burnett*, *CDC*, and *Holzrichter* because a *prima facie* case of obviousness has not been established.

Claims 24-34 depend from claim 17 and thus require all features of claim 17. As discussed above, *Burnett* and *CDC* do not teach or suggest the features of claim 17. *Holzrichter* also does not teach or suggest these claimed features, and fails to overcome the deficiencies of *Burnett* and *CDC*.

Therefore, a *prima facie* case of obviousness has not been established and claims 24-34 are allowable over *Burnett*, *CDC*, and *Iwata* at least due to their dependence from claim 17.

### **CONCLUSION**

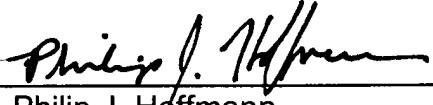
In view of the foregoing, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,  
GARRETT & DUNNER, L.L.P.

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By:   
Philip J. Hoffmann  
Reg. No. 46,340